UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/602,349	06/23/2003	Corey Gee	42P14357	1820

			EXAMINER
8791	7590	03/06/2006	TREAT, WILLIAM M

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ART UNIT	PAPER NUMBER
2181	

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Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/602,349	GEE ET AL.
	Examiner	Art Unit	
	William M. Treat	2181	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>23 June 2003</u>.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-54</u> is/are pending in the application.

    4a) Of the above claim(s) <u>17-54</u> is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-5,7-13,15 and 16</u> is/are rejected.

7)☒ Claim(s) <u>6 and 14</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>10/19/2005</u>.

4)☑ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____ .

1.   Claims 1-54 are presented for examination.

2.   Restriction to one of the following inventions is required under 35 U.S.C. 121:

I.   Claims 1-16, drawn to a method and apparatus for performing a PADD instruction, classified in class 708, subclass 670.

II.   Claims 17-26, drawn to a method and apparatus for performing an SMAD instruction, classified in class 708, subclass 709.

III.   Claims 27-43, drawn to a method and apparatus giving the details of a packet addition forming three result data fields, classified in class 712, subclass 221.

IV.   Claims 44-45, drawn to method and apparatus generating a carry and a save during a modulo 2n or 2n-1 addition, classified in class 708, subclass 708.

3.   Inventions I, II, III and IV are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention I has separate utility such as a method and apparatus for performing a PADD instruction in a system without the particular method and apparatus for performing the SMAD instruction of Invention II or the particular method and apparatus for packet addition which forms three result data fields of Invention III or the particular method and apparatus for generating a carry and a save during a modulo 2n or 2n-1 addition of Invention IV. Invention II has separate utility such as a method and apparatus for performing an SMAD instruction in a system without the particular method and apparatus for

performing the PADD instruction of Invention I or the particular method and apparatus

for packet addition which forms three result data fields of Invention III or the particular

method and apparatus for generating a carry and a save during a modulo 2n or 2n-1

addition of Invention IV. Invention III has separate utility such as a method and

apparatus for packet addition which forms three result data fields without the particular

method and apparatus for performing the PADD instruction of Invention I or the

particular method and apparatus for performing the SMAD instruction of Invention II or

the particular method and apparatus for generating a carry and a save during a modulo

2n or 2n-1 addition of Invention IV. Invention IV has separate utility such as a method

and apparatus for generating a carry and a save during a modulo 2n or 2n-1 addition

without the particular method and apparatus for performing the PADD instruction of

Invention I or the particular method and apparatus for performing the SMAD instruction

of Invention II or the particular method and apparatus for packet addition which forms

three result data fields of Invention III. See MPEP § 806.05(d).

4.   Because these inventions are distinct for the reasons given above and have

acquired a separate status in the art as shown by their different classification, restriction

for examination purposes as indicated is proper.

5.   Because these inventions are distinct for the reasons given above and the

search required for Group I is not required for Groups II, III, and IV, restriction for

examination purposes as indicated is proper.

6.   During a telephone conversation with William W. Schaal on 2/3/2006 a

provisional election was made without traverse to prosecute the invention of Group I,

claims 1-16. Affirmation of this election must be made by applicant in replying to this

Office action. Claims 17-54 are withdrawn from further consideration by the examiner,

37 CFR 1.142(b), as being drawn to a non-elected invention.

7.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8.   This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

9.   Claims 1-5, 7-13, and 15-16 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Wagner (C Compiler...) in view of Harriman, Jr. (Patent No.

5,838,960).

10.   Wagner taught the invention of exemplary claim 1 including a method

comprising: receiving a PADD instruction comprising a result register identifier to

identify a result register, a first source register identifier to identify a first source register

storing a first operand, and an operand identifier to identify a second operand, and in

response to receiving said PADD instruction performing a packet addition of the first

and second operands to generate a result, and to subsequently store the result in said

result register (TARGET ARCHITECTURE, pages 1303 and 1304 and BIT-PACKET

PROCESSING IN C: A. Use of Compiler-Known Functions, right-hand column on page

1304).

11.   Note that Wagner taught a system where the result register and the first source

register are the same, which is not precluded by applicants' claim language. Were

applicants to specify that their PADD instruction has three distinct operands, this would

not represent patentable differentiation in the examiner's judgment. There are patents

in the US patents database teaching three operand instructions which were filed over a

quarter of a century ago. One of ordinary skill realizes having a two operand instruction

versus a three operand instruction represents a design trade-off. A two operand

instruction can, typically, be stored in less space than the three-operand instruction and

can require less complex circuitry to implement but affords less flexibility in terms of

choice of source and destination registers and may subsequently require another

instruction to move the result to a desired location. One of ordinary skill such as

applicants understands such design trade-offs as does applicants' assignee which

designs and creates computer chips as well as the computer's instruction set.

12.   However, Wagner did not teach "causing a dedicated PADD logic device" to

perform a packet addition of the first and second operands to generate a result.

However, Harriman, Jr. taught that "as the bandwidth of network transmission mediums

continuously increases, the speed and efficiency of the switching hubs should be

increased to avoid slowing down the transmission of the data along the networks" (col.

1, lines 41-44), and that one way to increase the speed and efficiency of a switching

hub is through the use add instructions implemented on an add circuit of a pipeline

processor implemented on a multitasking computer system architecture supporting

multiple independent processors dedicated to processing data packets (col. 1, lines 44-

46; col. 2, lines 6-25; and col. 3, lines 18-36). One of ordinary skill in the art would have

been motivated to combine Harriman, Jr.'s concept of a special add circuit for use in a

system for processing data packets with Wagner's teaching of a packet add instruction

to increase the speed and efficiency of processing such data as taught by Harriman, Jr.

supra.

13.   As to claim 2, Wagner taught the method of claim 1, wherein said operand

identifier identifies a second source register storing said second operand (TARGET

ARCHITECTURE, p. 1304, first sentence of the left-hand column).

14.   As to claim 3, Harriman, Jr. taught the method of claim 1 wherein said operand

identifier identities an immediate value to use as said second operand (col. 3, lines 18-

25). One of ordinary skill in the art would have been motivated to combine this old and

very well-known instruction technique with the teachings of Wagner to provide greater

flexibility for his packet add instruction.

15.   As to claims 4 and 5, Wagner taught the method of claim 1, wherein said PADD

instruction further comprises a start identifier to identify the start bit of said first operand

and a stop identifier to identify the stop bit of said first operand (TARGET

ARCHITECTURE, pages 1303 and 1304). The offset plus the bit width identify the

location of the start bit and stop bit for the data in the first operand. This would be the

functional equivalent of what applicants are claiming.

16.   As to claim 7, Wagner taught the method of claim 1, wherein said PADD

instruction includes a data field parameter to indicate that only certain bits of the content

stored in said first register serves as said first operand (TARGET ARCHITECTURE,

pages 1303 and 1304).

17.   As to claim 8, Harriman, Jr. taught the method of claim 1, wherein said PADD

instruction includes an immediate value parameter to indicate that an immediate value

serves as said second operand (col. 3, lines 18-25). One of ordinary skill in the art

would have been motivated to combine this old and very well-known instruction

technique with the teachings of Wagner to provide greater flexibility for his packet add

instruction.

18.   As to claims 9-13 and 15-16, they fail to teach or define over rejected claims 1-5
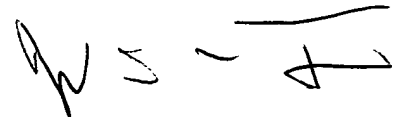
and 7-8.

19.   Claims 6 and 14 are objected to as being dependent upon a rejected base claim,

but would be allowable if rewritten in independent form including all of the limitations of

the base claim and any intervening claims.

20.   Any inquiry concerning this communication should be directed to William M.

Treat at telephone number (571) 272-4175. The examiner works at home on

Wednesdays but may normally be reached on Wednesdays by leaving a voice message

using his office phone number. The examiner also works a flexible schedule but may

normally be reached in the afternoon and evening on three of the four remaining

weekdays.

21.   Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

WILLIAM M. TREAT
PRIMARY EXAMINER